BEFORE THE STATE OF WASHINGTON
ENERGY FACILITY SITE EVALUATION COUNCIL

In the Matter of Application No. 99-1: SUMAS ENERGY 2 GENERATION FACILITY	**EXHIBIT ___ (BC-RT)**

APPLICANT'S PRE-FILED REBUTTAL TESTIMONY

WITNESS: BURT CLOTHIER

Q. Please re-introduce yourself to the Council.

A. My name is Burt Clothier. I am a Principal Hydrologist at Robinson & Noble in Tacoma, Washington.

Q. What issues will you address in this rebuttal testimony?

A. My rebuttal testimony will address issues related to water supply raised in Mr. Allan Dakin's testimony, which was submitted by the Province of British Columbia.

PERKINS COIE LLP
1201 Third Avenue, Suite 4800
Seattle, Washington 98101-3099
(206) 583-8888

SE2's Proposed Monitoring Program

Q. In his testimony, Mr. Dakin indicates that he is concerned that "all wells in British Columbia within the cone of influence be included in the monitoring program." What has SE2 done to address this concern?

A. As described in SE2's Second Revised Application ("SRA"), the monitoring program will include all wells within the zone of potential influence, including those in British Columbia. For example, on page 1.4-6 of the SRA, SE2 commits to identifying all wells within the zone of potential influence "on both sides of the international border . . . including, to the extent possible, both registered and unregistered wells on the Canadian side of the border . . . ." My direct testimony explained what would be done to confirm the zone of potential influence. SE2 has thus made it clear that wells located in British Columbia that are within the zone of potential influence will be included in the monitoring program.

Q. Mr. Dankin also states that "SE2 has not provided any details of either the proposed monitoring program . . . or their mitigation plan" with respect to British Columbia during the first year of operation. Do you agree with this statement?

A. No. First of all, as mentioned above, SE2 has explicitly stated that the monitoring program includes wells in British Columbia. Second, as set forth in the SRA (pp. 1.4-6 to 1.4-7) and as described in my earlier testimony, SE2 has proposed a detailed plan for both monitoring and mitigation. I won't reiterate all those details here, but just to give a couple of examples, SE2 has proposed as a part of the pre-operation baseline survey that "[w]ith the consent of the well owners," including those in British

PERKINS COIE LLP
1201 Third Avenue, Suite 4800
Seattle, Washington 98101-3099
(206) 583-8888

Columbia, "the water level in each well surveyed will be measured to identify a background condition." (SRA, p. 1.4-6.) Similarly, "[a]fter S2GF commences operation, monitoring of all wells within the updated potential zone of influence whose owners consented to pre-operation monitoring," including well owners in Canada, "will be performed monthly for the first year of plant operation." As a final example, if as a result of the monitoring, a Canadian well (or indeed, ANY well) is identified as adversely impacted, SE2 will submit a mitigation plan for the Council's approval, which may include "lowering of the pump in the well, providing additional water reserve, well redevelopment," etc.

I am therefore surprised by Mr. Dakin's statement. Far from failing to provide "any" details regarding monitoring and mitigation, SE2 has proposed a very detailed plan with respect to both of these issues.

Q. Mr. Dakin also says that SE2's monitoring proposal is inadequate because a monitoring report will not be submitted to the Council until the end of the first year of operation whereas impacts on individual wells could be noticed sooner. What is your response?

A. I am once again surprised that Mr. Dakin raises this concern since I addressed it in detail in my earlier testimony. To save the reader the trouble of retrieving that testimony, I'll simply quote it as follows:

> Part of the process of establishing the monitoring network involves a simple education process for well owners who agree to participate in the monitoring plan. By providing the basic information on how and why the monitoring is being conducted, well owners would be made

PERKINS COIE LLP
1201 Third Avenue, Suite 4800
Seattle, Washington 98101-3099
(206) 583-8888

more aware of the conditions of their well under normal use. When the plant begins operation, any sudden changes in the well's performance would be noticeable to the well owner as a contrast to the pre-operation condition. If such a condition were to occur, the well owner would have information about who to contact. SE2 would investigate the well's condition by collecting supplemental information as appropriate to the change in well performance noted by the well owner. (The investigation could include, but would not necessarily be limited to: water level measurements, short pumping tests of one to two hours duration, and water sampling for sand production or turbidity.) If an initial diagnosis were unclear, more frequent water level monitoring could be conducted as warranted.

With that said, I should also mention that I believe it is extremely unlikely that this sort of dramatic impact would occur. As I mentioned before, the data that currently exists suggests that the predicted radius of potential impacts is over-estimated. From my experience with this aquifer, it is clear that if there were a potential for the aquifer to respond as would be necessary for this hypothetical extreme impact to occur, previous pumping conditions would have already caused an observable response noticeable to individual well owners in the area.

The only thing I would like to add to the foregoing is to emphasize again that the monitoring program, including dealing with any individual well problems that might occur during the first year of operation, applies to wells on both sides of the border.

Aquifer Drawdown and Stream Flow

Q. In his testimony, Mr. Dakin was referred to statements in Council Order 754 regarding drawdown in the areas surrounding the well fields, including a statement that although the drawdown "would be, in effect, a permanent condition because the well fields would be pumped continually." (Council Order 754, p. 32.) Is a localized drawdown of the water table a problem in and of itself?

PERKINS COIE LLP
1201 Third Avenue, Suite 4800
Seattle, Washington 98101-3099
(206) 583-8888

A. No. It is true that if the City of Sumas exercises all of its water rights, a certain amount of drawdown may occur near the City's wells. However, as I indicated in my earlier testimony, all of the research done to date demonstrates that the withdrawals for SE2 constitute only a tiny fraction of the water available in the aquifer, and pump tests have shown that the withdrawals are not likely to have any water level impacts beyond the limited responses predicted by the application of well hydraulics theory.

Moreover, issues such as a general lowering of the water table and effects on surface streamflows are evaluated when water rights are initially allocated. By permitting the City of Sumas's combined water rights at 3,744 acre feet per year (*see* Final Environmental Impact Statement, p. 3.2-16 (Feb. 7, 2001) ("FEIS")), the Department of Ecology has already concluded as a general matter that the effects on the water table, surface streamflows, etc., from drawing this quantity of water from the Sumas aquifer are within acceptable limits. This conclusion is in line with a critical portion of Council Order 754 that was left out of the sentence that was quoted to Mr. Dakin, namely, that the localized drawdown is "not an indication that the aquifer is being depleted . . . ." (Council Order 754, pp. 31-32.)

In fact, the concern raised by the Council in Order 754 was not whether the amount of water being withdrawn by the City of Sumas was excessive because the water table could be lowered. The concern was whether the lower water table might adversely affect nearby private wells, for example, where such wells are relatively shallow. Council Order 754, p. 32. SE2 has addressed this concern through its proposal to monitor and mitigate any impacts on private well owners.

PERKINS COIE LLP
1201 Third Avenue, Suite 4800
Seattle, Washington 98101-3099
(206) 583-8888

Q. Do you have any comments regarding Mr. Dakin's testimony about possible effects on baseflow in local streams?

A. Yes. As an initial matter, it is disappointing that the Province's witness is raising this issue for the first time at this late date. Water supply issues were addressed in detail during the first round of hearings, and I do not recall anyone raising concerns about stream flow impacts. To the contrary, although the issue of surface flow impacts was discussed in the Final Environmental Impact Statement (February 7, 2001) ("FEIS"), *e.g.*, page 1-11, it was not mentioned in the FEIS's discussion of environmental impacts. *Id.*, 3.2.3.2. Presumably, this was because the Council's independent environmental consultant concluded that there would be no significant impacts to surface stream flows from operation of the SE2 facility.

In any event, it is my opinion that the SE2 project will not and cannot have any effect on surface stream flows. First, the origins of the municipal well field was a surface spring. The water from this spring was collected in a cistern to supply the City. Later, due to health concerns, wells were drilled to capture the water before it reached the surface. The quantity of water that can be drawn from the municipal well field essentially coincides with the quantity of water produced by the original spring. In other words, with respect to the municipal well field, any reduction in the amount of water that reaches the surface was caused years ago when the well field was created since it effectively cut-off the surface spring that was the original source of the City's water supply. Consequently, there can be no impact on surface flows as a result of

PERKINS COIE LLP
1201 Third Avenue, Suite 4800
Seattle, Washington 98101-3099
(206) 583-8888

pumping within the City's municipal well field water rights, whether the water is supplied to the SE2 facility or to some other user.

Second, with respect to the May Road well field, issues such as the effects on surface streamflows were addressed when the City's water rights were first permitted. At that time, under the direction of the Department of Ecology, a week of test pumping was conducted and extensive studies were made to determine both the quantity of withdrawals that would be permitted as well as any conditions to such withdrawals. As a result of these studies, the City's May Road well field water rights include "a stream mitigation requirement of 18% of the instantaneous withdrawal rate with 422.2 acre-feet per year reserved for mitigation." FEIS, Table 3.2-1, note (b). That is, 18% of all water drawn from the May Road well field is added to an unnamed spring next to the pumping station. This spring flows into Johnson Creek which then flows into the Sumas River. As with withdrawals from the municipal well field, therefore, withdrawals from the May Road well field cannot materially affect surface stream flows, not in the immediate vicinity and certainly not in British Columbia.

Third, Mr. Dakin suggests that since the groundwater eventually flows back to the surface, pumping from the aquifer could reduce surface stream flows. However, even setting aside the above considerations, while this might theoretically be true in some hypothetical situation, there are two basic reasons why it could not cause significant effects here. First, the City of Sumas's water rights comprise a relatively small proportion of the total resources of the Sumas aquifer. Second, the points at which the groundwater comes to the surface are distant from the City's pumping stations.

PERKINS COIE LLP
1201 Third Avenue, Suite 4800
Seattle, Washington 98101-3099
(206) 583-8888

As a result, the potential effects from pumping in the immediate vicinity are dissipated by the time the groundwater reaches the surface and would generally be no greater, in percentage terms, than for the aquifer as a whole. Thus, even if the possible impacts on surface stream flows had not already been addressed when Sumas's water rights were originally permitted, which they were, there would not be any appreciable impact on such flows as a result of water withdrawals for the SE2 facility, either in the Sumas area or, much less, in British Columbia.

Finally, I would like to mention again, as I did in my earlier testimony, that it is rare — indeed, in my experience, unprecedented — for a water user with no legal control over the water in question to commit to the high level of resource protection and assurance of responsiveness that SE2 has committed itself through its proposals. In any event, however, the sorts of regional water use concerns that Mr. Dakin raises would more properly be addressed as part of the process of determining the allocation of water resource rights in the first instance. In this case, that has already occurred.

Water Quality

Q. Mr. Dakin's Testimony makes reference to nitrate concentrations in the Sumas Aquifer, quoting the Council's Order 754 to state that water quality mitigation for nitrates should be offered by SE2 to individual well owners where nitrate exceedances occur. From your perspective, is such mitigation warranted?

A. No. The nitrate concentrations in the Sumas/Abbottsford Aquifer are a pre-existing condition of the aquifer water quality. These concentrations neither result from nor are affected by the proposed project. The high nitrate concentrations are a result of

PERKINS COIE LLP
1201 Third Avenue, Suite 4800
Seattle, Washington 98101-3099
(206) 583-8888

farming practices in British Columbia, a fact that has been well known for years (not to mention, previously studied by the British Columbia government). While we cannot tell whether the influence of pumping will noticeably change the timing of a water quality change in wells (regardless of owner), the water quality changes will occur regardless of this project. Therefore, SE2 is being requested to mitigate a condition that is unrelated to its project. If the British Columbia government or Abbotsford community truly wished to address the nitrate problems in the aquifer, then a joint provincial/state effort should be made to correct the farming practices that are the cause of the condition. Without this, no improvements in water quality can occur. From the technical perspective, prediction of natural fluctuation in nitrate concentration is not possible (with or without this project). Therefore, there is no stable basis upon which to define an impact.

As I have stated repeatedly, Sumas Energy 2 is not the holder of the water rights to be exercised. The withdrawals from the City of Sumas wells have been appropriately requested and allocated by the State of Washington. If the British Columbia government believed that the withdrawal of water from the Sumas wellfields would have the effect of speeding the spread of high-nitrate waters in the aquifer, then such issues should have been raised at the time the water rights were permitted. It is my understanding that the Department of Ecology maintains at least some amount of cross-border communication with regard to water issues and that the nitrate problem was well known at the time the permits were granted. I therefore do not understand why the British Columbia government should wish to lay a mitigation demand on a private business for an issue that they declined to comment on during government-to-

PERKINS COIE LLP
1201 Third Avenue, Suite 4800
Seattle, Washington 98101-3099
(206) 583-8888

government interactions. Indeed, SE2 does not legally control the water withdrawals or the water rights associated to those withdrawals, and the City could withdraw this water whether or not the SE2 facility is built.

END OF TESTIMONY

PERKINS COIE LLP
1201 Third Avenue, Suite 4800
Seattle, Washington 98101-3099
(206) 583-8888